

# Piezoelectric Micromachined Ultrasonic Transducers

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## **Abstract**

Integration of ferroelectric thin films into silicon MEMS allows to make miniaturized acoustic transducers for audio or ultrasonic applications. They can be used either in emission or in reception of acoustic waves (or both). The activation of a thin silicon membrane by a piezoelectric bimorph effect is a way to obtain electromechanical actuation with low voltages. Some competitive actuation methods exist like capacitive, magnetostrictive, thermal; which have different advantages and drawbacks. Demonstration of different designs and experimental measurements will be made, showing the feasibility of the concept as well as its present limitations.